Implementasi Hill Chiper dalam Penyandian Citra Digital Hasil Steganografi Metode Least Significant Bit pada Data Teks Terenkripsi

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ABSTRAK

Permasalahan kerahasiaan (confidentiality) dan keamanan (security) menjadi komponen penting sebuah data, baik dalam komputer maupun internet. Terkhusus dalam internet, risiko sebuah data disadap dan dicuri akan semakin tinggi, mengingat keterbukaan dan keterkaitannya luas di seluruh dunia. Kriptografi dan Steganografi memegang peranan penting dalam mengatasi hal tersebut. Penelitan ini menggunakan kombinasi keduanya untuk mencoba memberikan pengamanan yang lebih baik pada data teks. Metode yang digunakan yaitu Hill Cipher dan Least Significant Bit. Dimana Hill Cipher digunakan untuk mengenkripsi teks dan citra stego, sedangkan Least Significant Bit digunakan dalam proses penyisipan pesan terenkripsi ke citra digital. Hasil yang didapatkan dari proses steganografi terbilang baik dengan rata-rata nilai PSNR (Peak Signal to Noise Ratio) mencapai 80.85279dB, begitu juga dengan enkripsi citra menggunaakan Hill Cipher yang mendapatkan rata-rata nilai NPCR (Number of Pixel Change Ratio) sebesar 98.73685%. Namun hasil dari penilitian belum mampu menahan serangan noise dengan baik, dan masih butuh peningkatan pada metode-metode yang diterapkan.

Kata Kunci : Penyisipan Data, Steganografi, Kriptografi, Hill Cipher, Least Significant Bit, PSNR, NPCR

Implementation of Hill Cipher for Least Significant Bit Steganographic Image Encryption on Encrypted Text Data

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ABSTRACT

Confidentiality and security issues become important components of data, both in computer and internet. Especially on the internet, the risk of data being tapped and stolen will be higher, because of its wide openness and interconnectedness around the world. Cryptography and Steganography play an important role in overcoming it. This research uses the combination of both to try to provide better security of text data. The method used is Hill Cipher and Least Significant Bit. Where Hill Cipher is used to encrypt text and steganography images, while Least Significant Bit is used in the process of inserting encrypted messages into digital imagery. The results obtained from the steganography process is good with the average value of PSNR (Peak Signal to Noise Ratio) reaches 80.85279 dB, as well as image encryption using Hill Cipher which gets the average value of Pixel Change Ratio (NPCR) of 98.73685 %. But the results of the research have not been able to withstand the noise attacks well, and still need improvement in the methods applied.

Keyword : Data Hiding, Steganography, Cryptography, Hill Cipher, Least Significant Bit, PSNR, NPCR